

**Published by:**

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All issues of the PTSD Research  
Quarterly are available online at:  
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## The Impact of Disasters and Political Violence on Mental Health in Latin America

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This edition of the *PTSD Research Quarterly* is the first in an occasional series on the epidemiology of trauma around the world. Although there are relatively few general-population studies of trauma and PTSD in Latin America (not reviewed here), a substantial body of work on disasters or political violence exists. The Americas have been vulnerable to catastrophic earthquakes, volcanic eruptions, hurricanes, floods, and other natural disasters. Latin America has also experienced horrific levels of political violence since 1970 (peaking in the 1980s) due to war, insurgencies, counterinsurgencies, and other civil conflicts. The violence has taken many terrifying forms, including massacres and burnings of villages, torture, rapes of women, and ubiquitous "disappearances."

Investigators who have studied mass trauma in Latin America have confronted a myriad of challenges. Damage to the community's infrastructure often makes fieldwork very difficult. Authors sometimes lament the impossibility of selecting research participants randomly or assessing them longitudinally. Cross-cultural understanding of PTSD is still in its infancy, a situation that often leads to epistemological debates that rely more heavily on accumulated wisdom than scientific evidence. In their review of the global refugee literature, Hollifield et al. (2007) concluded that the majority of studies have used measures that have limited or untested reliability and validity in refugees. In some studies considered for inclusion here, investigators derived their own measures that have unknown psychometric properties, and in a few other studies, investigators used good measures of symptoms but did not assess functional impairment. These shortcomings yield concerns about the generalizability of the entire body of Latin American research to the populations of interest and uncertainties about how well it

describes the onset and course of psychopathology over time. The studies reviewed here were selected in part because they did reasonably well in overcoming these various research challenges.

This brief review of Latin American research is focused primarily on PTSD, but it would be incomplete without some consideration of other psychiatric and health outcomes. A more detailed review of the consequences of trauma in Latin America was provided by Norris and Kohn (2009). There are two aspects of PTSD research reflected in the Latin American disaster literature. The first is related to the phenomenology of posttraumatic stress and the cross-cultural validity of the PTSD concept. Norris, Weisshaar, and colleagues (2001) asked 24 Mexican adults to describe, in their own words, the emotions they observed in themselves or others after disasters in their communities. Participants mentioned 14 of the 17 criterion symptoms of PTSD with little or no prompting. Reactions that could not be classified as specific criterion symptoms clustered into three primary sets: acute psychological distress, lasting trauma, and somatic complaints. The "lasting trauma" set contained an abundance of expressions ("always live with the fear," "people stayed traumatized") that could not be classified as specific criterion symptoms but clearly implied that the concept of trauma, more globally defined, was a meaningful one. Norris, Perilla, and Murphy (2001) compared data collected 6 months after Hurricane Paulina from 200 residents of Acapulco to similar data collected 6 months after Hurricane Andrew from 270 non-Hispanic residents of Miami. A four-factor measurement model of PTSD fit the two samples equally well and the factors correlated with exposure severity equivalently, which provided solid empirical evidence of cross-cultural construct validity. More research like this is needed to validate the construct

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of PTSD in various Latin American populations, but these results from Mexico were promising.

The second area of PTSD research is related to establishing its prevalence after disasters and political violence in Latin America. The application of modern epidemiologic methods to estimating the mental health consequences of disasters in the region began in earnest in response to a confluence of disasters in 1985, including floods and mudslides in Puerto Rico, earthquakes in Mexico and Chile, and a volcano eruption in Colombia. Estimates for communities exposed to disasters include: 4% two years after the 1985 Puerto Rican flood (Canino et al., 1990); 6% six months after Hurricane Mitch in León, Nicaragua (Caldera et al., 2001); 11% in Tegucigalpa, Honduras three months after Hurricane Mitch (Kohn et al., 2005); 16% in Moquegua, Peru one year after the 2001 earthquake (Gargurevich, 2006); 19% in Santiago housing projects 8-12 months after the 1985 earthquake (Durkin, 1993); 32% in Mexico City shelters two months after the 1985 earthquake (de la Fuente, 1990); 40% in a resettled community near Lima, Peru four months after the Lomo de Corvina fire (Gargurevich, 2006); 14%-46% (at six months) and 8%-19% (at two years) across sites after the 1999 Mexico flood (Norris et al., 2004); and 14%-90% across sites among adolescents in Nicaragua after Hurricane Mitch (Goenjian et al., 2001). Thus, usually, population prevalence of PTSD in the first year postdisaster is in the 10%-20% range but may be considerably higher in sheltered, displaced, or high-risk populations who have particularly intense experiences or ongoing adversities. Acute stress disorder has also been documented after disasters in Latin America (e.g., Sattler et al., 2006).

The prevalence of PTSD has also been examined in the aftermath of political violence. These studies vary widely in timing of assessment, and many provided frequency data on various criterion symptoms rather than best estimates of prevalence of disorder. The range of estimates include: 9% current prevalence (symptoms) in a sample of Guatemalans who were repatriated after 12-18 years in Mexico (Sabin et al., 2006); 12% current prevalence (symptoms) in a sample of Mayan refugees in Mexico 20 years after fleeing Guatemala (Sabin et al., 2003); 18% current prevalence (symptoms) in a sample of violence-exposed immigrants from Central America seen in primary care in Los Angeles (Eisenman et al., 2003); 17%-23% in a sample of children from two towns in Colombia (Pérez-Olmos et al., 2005); 25% male/50% female current prevalence in a sample living in a Nicaraguan war zone (Summerfield & Toser, 1991); 29% in a sample of Colombians displaced to another town in the country (Sistiva-Castro & Sabatier, 2005); 38% in a Colombian sample 2 years after a guerilla attack (Pineda et al., 2002); 52% in an early and influential study of 120 political refugees in Los Angeles (Cervantes, Salgado de Snyder, & Padilla, 1989); and 57% current prevalence (symptoms) in a sample of youth in Miami after fleeing Cuba by boat (Rothe et al., 2002). In general, the levels of PTSD were much higher in these studies than in the disaster studies even though they were often conducted some years after exposure to the violence. Few of these studies adjusted results for functional impairment, and thus prevalence estimates might be inflated. The early and frequently-cited study of Cervantes and colleagues was highly important for calling attention to the problem of PTSD in Central American refugees; however, by current standards, the results are suspect based on the loose criteria and the lack of standardized measures at the time the research was conducted.

Yet, three Colombian studies published since 2002 used DSM-IV criteria and "gold standard" measures and still found substantial prevalence of PTSD, in the range of 17% to 38% (Perez-Olmos et al., 2005; Pineda et al., 2002; Sistiva-Castro & Sabatier, 2005).

Within those studies that also reported on PTSD (see Norris & Kohn, 2009, for additional citations), prevalences of major depressive disorder in Latin America include: 8% in exposed adults two years after the 1985 flood in Puerto Rico (Canino et al., 1990); 7%-15% across sites six months after the 1999 Mexico floods (Norris et al., 2004); 13% in shelters two months after the 1985 Mexico City earthquake (de la Fuente, 1990); 18% in Santiago, Chile 8-12 months after the 1985 earthquake (Durkin, 1993); and 19%-23% in samples exposed to chronic (La Palma) or recent (Arbeláez) violence in Colombia (Pérez-Olmos et al., 2005). In addition, numerous studies have found elevations in depressive symptoms as measured by self-report scales. Percentages scoring above study criteria (usually scale cut-points) were 9% (children) and 20% (adults) in Tegucigalpa, Honduras three months after Hurricane Mitch (Kohn et al., 2005); 29%-81% in three school-based samples in Nicaragua six months after Hurricane Mitch (Goenjian et al., 2001); 36% in Eisenman et al.'s (2003) sample of Central Americans in Los Angeles; 39% among Mayan refugees in Mexico (Sabin et al., 2003); and 48% among repatriated Mayans in Guatemala (Sabin et al., 2006).

Investigators have sometimes assessed "caseness," undifferentiated as to the exact nature of the probable diagnosis. The most prominent measure of caseness in Latin American research has been the Self-Reporting Questionnaire (SRQ). For example, Lima and colleagues used the SRQ to establish that 55% of adults living in tent camps after the Armero volcano eruption were probable cases (Lima et al., 1987); of those who screened positive on the SRQ, 91% qualified for a psychiatric diagnosis on the basis of a subsequent clinical interview (Lima et al., 1991). In primary care samples studied after the 1987 earthquake in Ecuador, 45% and 40%, respectively, screened as probable cases (Lima et al., 1992). In a multisite study of persons exposed to political violence, family members of disappeared persons in Chile and Argentina averaged the highest SRQ scores (Allodi & Rojas, 1985).

Although children, like adults, have been found to suffer from PTSD, anxiety symptoms, and depression, children also experience distress in forms unique to their developmental stage. For example, many Cuban children who reached Miami after the 1994 exodus showed moderate (23%) or severe (41%) regressive behavior (Rothe et al., 2002). In Honduras, children of the disappeared were at risk for outbursts (21%), declines in school performance (20%), and bed-wetting (16%) (Quirk & Casco, 1994).

Psychosomatic ailments have also been documented. Adults exposed to the Puerto Rican flood had higher levels of new gastro-intestinal and pseudo-neurological symptoms than did unexposed adults (Escobar et al., 1992). In a sample of Nicaraguans exposed to war, 57% of men and 86% of women reported psychosomatic symptoms, such as headaches, bodily pains, and dizziness (Summerfield & Toser, 1991). After the 1999 floods in Mexico, severity of exposure was related to higher cardio-pulmonary, muscular-skeletal, gastro-intestinal/urinary, and total health symptoms, but these effects were completely mediated by postdisaster PTSD (Norris et al., 2006).

Certain popular illnesses have also been reported. After the 1985 Puerto Rican flood, 16% reported experiencing *ataques de nervios*, a popular illness that resembles anxiety and panic (Guarnaccia, 1993). One of the best examples in this literature was Warner's (2007) discussion of *muchkej* in Mayan (Q'eqchi') women living in refugee camps in Chiapas, Mexico. Roughly translated as *cramps* in English and *calambres* in Spanish, but generally referring to a generalized pain that moves all over the body, *muchkej* became an acceptable illness for which women often sought help and obtained sympathy, social support, and relief from physically taxing chores. More than half of the participants in Warner's research reported experiencing this illness two or more days per week.

Disasters and mass violence may affect social adjustment as well as psychological and physical health. Norris and colleagues (2005) studied social support longitudinally after the 1999 floods in Mexico; perceived social support and social embeddedness in the disaster-stricken communities were far lower than Mexican norms, especially among women and displaced participants. Compared to other immigrants, torture survivors in Toronto, Canada showed significantly less social adjustment, reporting more family arguments and less interest in their children (Allodi & Rojas, 1985). Children of the disappeared in Honduras experienced conflicted family relationships and shunning by neighbors and friends (Quirk & Casco, 1994).

## Implications for Intervention

This review of research in Latin America provides compelling evidence that the international health community needs to anticipate and prepare for epidemics of PTSD and other psychiatric disorders after disasters or political violence, especially when the events cause mass casualties and a high degree of community destruction or displacement. The high prevalence in Latin America of psychosomatic expressions of distress calls for renewed efforts to integrate mental health screening and treatment into primary care. As a group, these studies also show that planners must be mindful of social as well as psychological consequences of disasters and mass violence. From this perspective, Norris and Alegria (2005) made several recommendations for postdisaster mental health care that seem broadly applicable to Latin America.

## References

Hollifield, M., Warner, T. D., Lian, N., Krakow, B., Jenkins, J. H., Kesler, J., et al. (2007) **Measuring trauma and health status in refugees: A critical review.** *JAMA*, 288, 611-621.

Norris, F. H., & Alegria, M. (2005) **Mental health care for ethnic minority individuals and communities in the aftermath of disasters and mass violence.** *CNS Spectrums*, 10, 132-140.

Norris, F. H., & Kohn, R. (2009). **La repercusión de los desastres y la violencia política sobre la salud mental en América Latina [The impact of disasters and political violence on mental health in Latin America].** In J. J. Rodríguez, R. Kohn, S. Aguilar-Gaxiola, & René González (Eds.), *Epidemiología de los trastornos mentales en América Latina y el Caribe [Epidemiology of mental disorders in Latin America and the Caribbean]*. (pp. 256-285) Washington, DC: Organización Panamericana de la Salud.

Caldera, T., Palma, L., Penayo, U., & Kullgren, G. (2001) **Psychological impact of the hurricane Mitch in Nicaragua in a one-year perspective.** *Social Psychiatry and Psychiatric Epidemiology*, 36, 108-114. The study assesses the prevalence of PTSD and post-traumatic symptoms among people afflicted by Hurricane Mitch in Nicaragua and identifies risk factors for PTSD symptoms 6 months following a disaster. At four primary health care centers, 496 consecutive adult patients were interviewed 6 months after Hurricane Mitch. All individuals resident in the area during Mitch were judged to have experienced a trauma fulfilling A criteria for PTSD. Regarding more specific traumas, 39% reported a close relative to be dead or seriously injured and 72% had their house partly or completely destroyed. Prevalence of PTSD ranged from 9.0% in the worst afflicted area to 4.5% in a less damaged area. PTSD symptoms were significantly associated with the death of a relative, a house destroyed, female sex, previous mental health problems, and illiteracy. Those with previous mental health problems were more likely than others to seek help from any source, whereas the opposite was true for illiterate people. Of all respondents, 8.5% reported that they had thought of taking their lives, and illiterates and those with previous mental health problems were at particular risk for suicidal problems. One year after Mitch, half of those identified as PTSD cases at 6 months still fulfilled the criteria for a PTSD diagnosis. [Abstract Adapted]

Canino, G., Bravo, M., Rubio-Stipec, M., & Woodbury, M. (1990) **The impact of disaster on mental health: Prospective and retrospective analyses.** *International Journal of Mental Health*, 19, 51-69. Examined the effects of the 1985 Puerto Rico floods on mental health symptoms and diagnoses and determined the extent to which this effect was influenced by either demographic characteristics or previous symptoms. 912 persons (aged 17-68 yrs) were administered the Spanish version of the Diagnostic Interview Schedule: National Institute of Mental Health. The onset of depression, generalized anxiety, and PTSD was significantly more common among those exposed to a disaster than among those not exposed. The increase in stress-related disorders in the exposed Ss indicates that disaster stress increased the mental morbidity of this population.

Cervantes, R. C., Salgado de Snyder, V. N., & Padilla, A. M. (1989) **Posttraumatic stress in immigrants from Central America and Mexico.** *Hospital and Community Psychiatry*, 40, 615-619. International migration has been associated with increased levels of psychological disturbance, particularly among refugees who have fled from war or political unrest. This study examined self-reported symptoms of depression, anxiety, somatization, generalized distress, and PTSD in a community sample of 258 immigrants from Central America and Mexico and 329 native-born Mexican Americans and Anglo Americans. Immigrants were found to have higher levels of generalized distress than native-born Americans. Fifty-two percent of Central American immigrants who migrated as a result of war or political unrest reported symptoms consistent with a diagnosis of PTSD, compared with 49 percent of Central Americans who migrated for other reasons and 25 percent of Mexican immigrants. The authors call for more research to document the psychosocial aspects of migration.



De la Fuente, R. (1990) **The mental health consequences of the 1985 earthquakes in Mexico.** *International Journal of Mental Health, 19*, 21-29. One-two months after the 1985 Mexico City earthquake, the author evaluated the reactions of a random sample of 573 adults housed in shelters. On the basis of the Structured Clinical Interview for DSM-III, 32% of participants showed PTSD, 19% GAD, 13% MDD, and 2% panic disorder. Women showed higher prevalences than men (38% vs. 18% for PTSD; 24% vs. 9% for GAD, 16% vs. 7% MDD). The authors observed that shelter residents bonded with one another and shunned external intervention.

Eisenman, D. P., Gelberg, L., Liu, H., & Shapiro, M. F. (2003) **Mental health and health-related quality of life among adult Latino primary care patients living in the United States with previous exposure to political violence.** *Journal of the American Medical Association, 290*, 627-634. To determine (1) rates of exposure to political violence among Latino adult primary care patients who have immigrated to the United States from Central America, South America, and Mexico and its impact on mental health and health-related quality of life and (2) frequency of disclosure of political violence to primary care clinicians. Two-stage cluster design survey of a systematic sample of Latino immigrant adults in 3 community-based primary care clinics in Los Angeles, conducted from July 2001 to February 2002. A total of 638 (69%) of 919 eligible patients participated. In weighted analyses, 54% of participants reported political violence experiences in their home countries, including 8% who reported torture. Of those exposed to political violence, 36% had symptoms of depression and 18% had symptoms of PTSD vs. 20% and 8%, respectively, among those not exposed to political violence. Controlling for age, sex, country, years lived in the United States, acculturation, income, health insurance status, and recruitment site in a subsample of 512 participants (56%), those who reported political violence exposure were more likely to meet symptom criteria for PTSD and to have symptoms of depression and panic disorder than participants not reporting political violence. Those exposed to political violence reported more chronic pain and role limitations due to physical problems, as well as worse physical functioning and lower perceptions of general health than those who were not exposed to political violence. Only 3% of the 267 patients who had experienced political violence reported ever telling a clinician about it after immigrating; none reported their current physician asking about political violence. [Abstract Adapted]

Goenjian, A. K., Molina, L., Steinberg, A. M., Fairbanks, L. A., Alvarez, M. L., Goenjian, H. A., et al. (2001) **Posttraumatic stress and depressive reactions among Nicaraguan adolescents after Hurricane Mitch.** *American Journal of Psychiatry, 158*, 788-794. This study determined the severity of posttraumatic stress and depressive reactions in 158 Nicaraguan adolescents 6 months after Hurricane Mitch and the relationship of these reactions to objective and subjective features of hurricane exposure, death of a family member, forced relocation, and thoughts of revenge. Severe levels of posttraumatic stress and depressive reactions were found among adolescents in the two most heavily affected cities. Severity of posttraumatic stress and depressive reactions and features of objective hurricane-related experiences followed a "dose-of-exposure" pattern that was congruent with the rates of death and destruction

across cities. Level of impact (city), objective and subjective features, and thoughts of revenge accounted for 68% of the variance in severity of posttraumatic stress reaction. Severity of posttraumatic stress reaction, death of a family member, and sex accounted for 59% of the variance in severity of depression. These findings strongly indicate the need to incorporate public mental health approaches, including systematic screening and trauma/grief-focused interventions, within a comprehensive disaster recovery program. [Abstract Adapted]

Guarnaccia, P. J. (1993) **Ataques de nervios in Puerto Rico: Culture-bound syndrome or popular illness?** *Medical Anthropology, 15*, 157-170. *Ataque de nervios* is a popular illness category among Puerto Ricans and other Latinos written about in anthropological and psychiatric literature for over thirty years. This paper discusses the issue of categorizing *ataque de nervios* as a "culture-bound syndrome" using data from the first community-based study of this phenomenon using epidemiological methods. The paper summarizes the social and psychological correlates of *ataques de nervios* and provides a preliminary overview of the situations which provoke *ataques* and the symptoms people experience. The paper critically examines the use of the "culture-bound syndrome" framework for analyzing *ataques de nervios* and suggests that the term "popular illness" is a more effective label for categorizing this syndrome. [Author Abstract]

Kohn, R., Levav, I., Donaire Garcia, I., Machuca, M. E., & Tamashiro, R. (2005) **Prevalence, risk factors and aging vulnerability for psychopathology following a natural disaster in a developing country.** *International Journal of Geriatric Psychiatry, 20*, 835-841. 800 respondents of both genders aged 15 years and above, of which 103 were 60 and over, were selected from high, middle, and low residential status areas in Tegucigalpa that had suffered high and low exposure to the devastating effects of Hurricane Mitch. PTSD, depression, and SRQ-caseness were found, respectively in 13.6%, 18.8%, and 21.4% of the elderly. Their reactions did not differ in frequency from those of younger adults. Among the elderly, pre-hurricane psychological problems and the intensity of exposure were associated with increased risk for all outcomes measured except for alcohol misuse. No evidence was found for a differential vulnerability on the part of the elderly as compared with younger adults. Among the elderly, increasing age was not a factor. [Abstract Adapted]

Lima, B. R., Pai, S., Santacruz, H., & Lozano, J. (1991) **Psychiatric disorders among poor victims following a major disaster: Armero, Colombia.** *Journal of Nervous and Mental Disease, 179*, 420-427. We evaluated 102 adult victims of low socioeconomic status living in tent camps 8 months following the Armero disaster in Colombia to ascertain the level of psychiatric morbidity. 91% of the subjects identified by the screening instrument as being emotionally distressed met DSM-III criteria for a psychiatric disorder. The most frequent diagnoses were PTSD and major depression. These findings indicate that a simple screening instrument can be reliably used for the detection of significant emotional problems among disaster victims. Interventions for their adequate management need to be designed, implemented, and evaluated. The general health

sector, particularly the primary level of care, must participate actively in the delivery of mental health services to meet this need, particularly for a socioeconomically disadvantaged population. [Abstract Adapted]

Lima, B. R., Pai, S., Santacruz, H., Lozano, J., & Luna, J. (1987) **Screening for the psychological consequences of a major disaster in a developing country: Armero, Colombia.** *Acta Psychiatrica Scandinavica*, 76, 561-567. Seven months following the volcanic eruption that destroyed the small town of Armero, 200 victims were screened for emotional problems with the Self-Reporting Questionnaire, a simple and reliable instrument. 55% of the victims were found to be emotionally distressed. Variables associated with the presence of emotional distress included living alone, having lost one's previous job, a feeling of not being helped, not knowing date for leaving temporary shelter, being dissatisfied with living arrangements, complaining of non-specific physical symptoms or epigastric pain, and presenting several physical problems. The high prevalence of emotional distress supports the need to deliver mental care to disaster victims in developing countries through the primary level of care. Our findings provide guidelines for early detection of individuals at risk for developing emotional problems. [Author Abstract]

Norris, F. H., Murphy, A. D., Baker, C. K., & Perilla, J. L. (2004) **Postdisaster PTSD over four waves of a panel study of Mexico's 1999 flood.** *Journal of Traumatic Stress*, 17, 283-292. Samples of adults representative of Tezuatlán, Puebla and Villahermosa, Tabasco ( $N = 561$ ), were interviewed 6, 12, 18, and 24 months after the 1999 floods and mudslides in Mexico. Current DSM-IV PTSD and major depressive disorder (MDD) were assessed with the Composite International Diagnostic Interview. At Wave 1, PTSD was highly prevalent (24% combined), especially in Tezuatlán (46%), which had experienced mass casualties and displacement. Both linear and quadratic effects of time emerged, as PTSD symptoms initially declined but subsequently stabilized. Differences between cities lessened as time passed. Comorbidity between PTSD and MDD was substantial. The findings demonstrate that the international health community needs to be prepared for epidemics of PTSD when disasters strike developing areas of the world.

Norris, F. H., Perilla, J. L., & Murphy, A. D. (2001) **Postdisaster stress in the United States and Mexico: A cross-cultural test of the multicriterion conceptual model of posttraumatic stress disorder.** *Journal of Abnormal Psychology*, 110, 553-563. Data on symptoms of posttraumatic stress disorder (PTSD) were collected 6 months after Hurricanes Paulina ( $N = 200$ ; Mexico) and Andrew (non-Hispanic  $n = 270$ ; United States) using the Revised Civilian Mississippi Scale. A 4-factor measurement model that represented the accepted multicriterion conceptualization of PTSD fit the data of the U.S. and Mexican samples equally well. The 4 factors of Intrusion, Avoidance, Numbing, and Arousal correlated significantly and equivalently with severity of trauma in each sample. A single construct explained much of the covariance of the symptom factors in each sample. However, modeling PTSD as a unidimensional construct masked differences between samples in symptom severity. With severity of trauma controlled, the Mexican sample was higher in Intrusion and Avoidance, whereas the U.S. sample was higher in

Arousal. The results suggest that PTSD is a meaningful construct to study in Latin American societies. (PsycINFO Database Record (c) 2009 APA, all rights reserved)

Pérez-Olmos, I., Fernández-Piñeres, P. E., & Rodado-Fuentes, S. (2005) **Prevalencia del trastorno por estrés postraumático por la guerra, en niños de Cundinamarca, Colombia [The prevalence of war-related post-traumatic stress disorder in children from Cundinamarca, Colombia].** *Revista de Salud Pública*, 7, 268-280. A random sample of children aged 5-14 were evaluated during 2002 using semi-structured psychiatric interviews and the Clinician Administered PTSD Scale. 167 children were evaluated in La Palma who had been chronically exposed to war, 164 in Arbeláez who had had recent war-exposure, and 162 in Sopó who had not been exposed to war. The prevalence of PTSD resulting from war was 16.8% in La Palma, 23.2% in Arbeláez, and 1.2% in Sopó. The logistic regression showed that geographical closeness to war zone and intense emotional reaction to war increased the probability of war-related PTSD. Vulnerability factors were predominant in war-exposed towns. Poverty, parents' low educational level, and child abuse predominated in La Palma. Attention-deficit and psychosomatic disorders were more prevalent in Arbeláez. Early therapeutic intervention is a public health priority. The results are useful for countries suffering from war, internal conflict, and/or terrorism. [Abstract Adapted]

Pineda, D. A., Guerrero, O. L., Pinilla, M. L., & Estupiñán, M. (2002) **Utilidad de un cuestionario para rastreo del estrés postraumático en una población colombiana [Usefulness of a screening questionnaire for post traumatic stress in a Colombian population].** *Revista de Neurología*, 34, 911-916. To validate a PTSD checklist in a Colombian village population, which was semi-destroyed by a guerrilla attack, a random sample of 202 adult participants, aged over 15 years old, was selected from San Joaquin (Santander-Colombia) two year after a guerrilla attack. 76 participants (37.6%) met criteria for PTSD, and 126 (62.4%) were classified as non PTSD. A rating checklist with 24 symptoms of PTSD was applied by self-report. PTSD checklist had a reliability Cronbach's alpha coefficient of .97. The PTSD group scored  $70.4 \pm 22.9$ , and the non-PTSD  $37.2 \pm 13.7$  ( $p < 0.0001$ ) on the PTSD checklist. A discriminant analysis found that the scale had a correct classification capability of 88.6%. Sensibility was found between 76.3% for a cut-off point of 51 and 81.6% for a cut-off point of 45. Specificity changed between 71.4% for a cut-off point of 45 and 84.4% for a cut-off point of 51. [Abstract Adapted]

Rothe, E. M., Lewis, J., Castillo-Matos, H., Martinez, O., Busquets, R., & Martinez, I. (2002) **Posttraumatic stress disorder among Cuban children and adolescents after release from a refugee camp.** *Psychiatric Services*, 53, 970-976. Eighty-seven children and adolescents who had left Cuba by sea in the summer of 1994 and who had been confined to refugee camps for up to eight months before arriving in the United States were evaluated four to six months later. A majority of the children reported moderate to severe PTSD symptoms. Eighty-six percent of the children reported that the refugee experience had severely affected most of their peers. A statistically significant dose-effect relationship was found between the number of stressors and the severity of self-reported PTSD

symptoms. There was a modest relationship between withdrawn behavior and children's feelings that they would die at sea and witnessing violence at the camps. Age and witnessing violence in the camps were moderately associated with PTSD. [Abstract Adapted]

Sabin, M., Sabin, K., Kim, H. Y., Vergara, M., & Varese, L. (2006) **The mental health status of Mayan refugees after repatriation to Guatemala.** *Revista Panamericana de Salud Publica*, 19, 163-171. Mayan refugees who had been repatriated to Guatemala after spending 12-18 years in refugee camps in Mexico were compared to Guatemalan refugees who were continuing to live in Mexico. In 2001 a cross-sectional survey of adults (> or = 16 years) was conducted with random household sampling proportional to the population size in each of the five repatriation villages surveyed. A total of 179 households (one adult per household) agreed to participate, representing an overall participation rate of 88%, and one-third of all the households in the five communities. The respondents had personally experienced a mean of 5.5 trauma events and had witnessed a mean of 7.3 other trauma events. Of the respondents, 8.9% met the symptom criteria for PTSD, 17.3% for anxiety, and 47.8% for depression. PTSD was associated with being seriously wounded and with having relatives or friends mutilated. Anxiety was significantly more prevalent among the refugees remaining in Mexico (54.4%) than it was among the repatriated refugees (17.3%). The difference in the prevalence rates was not significant for PTSD (11.8% for refugees remaining in Mexico vs. 8.9% for those repatriated) or for depression (38.8% for refugees remaining in Mexico vs. 47.8% for those repatriated). [Abstract Adapted]

Sabin, M., Lopes Cardozo, B., Nackerud, L., Kaiser, R., & Varese, L. (2003) **Factors associated with poor mental health among Guatemalan refugees living in Mexico 20 years after civil conflict.** *Journal of the American Medical Association*, 290, 635-642. From 1981 to 2001, 46,000 refugees who fled the 36-year civil conflict in Guatemala for Chiapas, Mexico, were under the protection of the United Nations High Commissioner for Refugees. To estimate the prevalence of mental illness and factors associated with poor mental health of underserved Guatemalan refugee communities located in Chiapas, a cross-sectional survey of 183 households in 5 Mayan refugee camps in Chiapas was conducted November-December 2000. One adult (aged > or =16 years) per household ( $n = 170$  respondents) who agreed to participate was included in the analysis, representing an estimated 93% of households. All respondents reported experiencing at least 1 traumatic event with a mean of 8.3 traumatic events per individual. Of the respondents, 20 (11.8%) had all symptom criteria for PTSD, 87 (54.4%) had anxiety symptoms, and 62 (38.8%) had symptoms of depression. Witnessing the disappearance of family members, being close to death, or living with 9 to 15 persons in the same home were associated with symptoms of PTSD. There was a protective factor found for lacking sufficient food. Elevated anxiety symptoms were associated with witnessing a massacre, being wounded, and experiencing 7 to 12 traumatic events and 13 to 19 traumatic events. Elevated symptoms of depression were associated with being a woman, being widowed, being married, witnessing disappearances, experiencing 7 to 12 traumatic events, or experiencing 13 to 19 traumatic events. [Abstract Adapted]

Warner, F. R. (2007) **Social support and distress among Q'eqchi' refugee women in Maya Tucún, Mexico.** *Medical Anthropology Quarterly*, 21, 193-217. This article addresses issues of vulnerability and distress through an analysis of the relationship between social support networks and traumatic stress in a Q'eqchi' refugee community in southern Mexico. The sociopolitical violence, forced displacement, and encampment of Guatemalan Mayan populations resulted in the breakdown and dispersal of kin and community groups, leaving many Q'eqchi' women with weakened social support networks. Research involving testimonial interviews and traumatic stress and social support questionnaires revealed that Q'eqchi' refugee women with weak natal kin social support networks reported greater feelings of distress and symptoms of traumatic stress than did women with strong networks. In particular, a condition identified as *muchkej* emerged as one of the most significant symptoms reported by women with weak natal kin support networks. I critically consider *muchkej* as an idiom of distress and argue that aid organizations should consider the relationship between social support and traumatic stress, as expressed through such idioms, when attempting to identify vulnerable members of a refugee population.

## CITATIONS

Allodi, F., & Rojas, A. (1985) **The health and adaptation of victims of political violence in Latin America (Psychiatric effects of torture and disappearance).** In P. Pichot, P. Berner, R. Wolf, & K. Thau (Eds.), *Psychiatry: The state of the art, vol. 6: Drug dependence and alcoholism, forensic psychiatry, military psychiatry* (pp. 243-248). New York: Plenum Press. The authors assessed refugees and immigrants living in Toronto, Mexico City, Santiago, and Buenos Aires. Family members of disappeared persons averaged the symptoms. Compared to immigrants in Toronto, torture victims showed significantly less social adjustment, reporting more family arguments and less interest in their children. Families of the disappeared in Santiago and Buenos Aires showed worse work, family life, and social adjustment than Toronto victims and immigrants.

Durkin, M. E. (1993) **Major depression and post-traumatic stress disorder following the Coalinga (California) and Chile earthquakes: A cross-cultural comparison.** *Journal of Social Behavior and Personality*, 8 (5) 405-420. In an early cross-cultural study, 116 adults were sampled from a large housing project in Santiago 8-12 months after the 1985 Santiago earthquake and compared to 288 adults exposed to earthquake in Coalinga, CA. DSM-III prevalences of PTSD and MDD were 19% and 18% in Santiago and 3% and 15% in Coalinga. Rates for women were higher than rates for men.

Escobar, J. I., Canino, G., Rubio-Stipec, M., & Bravo, M. (1992) **Somatic symptoms after a natural disaster: A prospective study.** *American Journal of Psychiatry*, 149, 965-967. As part of a larger study, 375 adults were studied two years following the 1985 floods in Puerto Rico. Exposed adults reported higher levels of new gastrointestinal and pseudoneurological symptoms than



unexposed adults. They did not differ in new cardiorespiratory symptoms or in persistent symptoms.

Gargurevich, R. (2006) *Posttraumatic stress disorder and disasters in Peru: The role of personality and social support*. Leuven, Belgium: Katholieke Universiteit Leuven. The author conducted two studies in Peru. One year after the 2001 earthquake, 16% of the 88 sampled residents of Moquegua met criteria for current PTSD. Those with current PTSD scored higher on peritraumatic distress than those with lifetime-only or no PTSD diagnosis. Four months after the Lomo de Corvina fire (2003), 40% of the 174 relocated adults who were studied met PTSD criteria. Detailed analyses of personality and social predictors were presented.

Lima, B. R., Chávez, H., Samaniego, N., & Pai, S. (1992) **Psychiatric disorders among emotionally distressed disaster victims attending primary mental health clinics in Ecuador**. *Bulletin of the Pan American Health Organization*, 26, 60-66. Three months after the 1987 Imbabura earthquakes in Ecuador, 150 consecutive adults were screened with the Self-Reporting Questionnaire in 10 primary care clinics, of whom 60 (40%) screened as probable cases. Of those screening positive, 78% met criteria for psychiatric diagnosis, most commonly PTSD and MDD.

Norris, F. H., Baker, C. K., Murphy, A. D., & Kaniasty, K. (2005) **Social support mobilization and deterioration after Mexico's 1999 flood: Effects of context, gender, and time**. *American Journal of Community Psychology*, 36, 15-28. After the 1999 floods in Mexico, 561 randomly selected adults in Villahermosa and Teziutlán were interviewed all four times (6, 12, 18, and 24 mos. post). Perceived social support and social embeddedness were lower than Mexican norms. Displaced women were especially likely to experience deterioration in social functioning. Gender disparities in social support grew larger as time passed.

Norris, F. H., Slone, L. B., Baker, C. K., & Murphy, A. D. (2006) **Early physical health consequences of disaster exposure and acute disaster-related PTSD**. *Anxiety, Stress, and Coping*, 19, 95-110. Six months after floods in Mexico, a random sample of 666 adults scored higher than Mexican norms on all measures of physical health symptoms. With predisaster PTSD, MDD and living standards controlled, severity of exposure was related to higher cardio-pulmonary, muscular-skeletal, and gastrointestinal-urinary symptoms. The effects were mediated by postdisaster PTSD.

Norris, F. H., Weisshaar, D. L., Conrad, M. L., Diaz, E. M., Murphy, A. D., Ibañez, G. E. (2001) **A qualitative analysis of posttraumatic stress among Mexican victims of disaster**. *Journal of Traumatic Stress*, 14, 741-756. Data from unstructured interviews conducted with 24 adults were analyzed to determine how well the PTSD diagnosis matched Mexicans' construction of trauma and its aftermath: Of 17 criterion symptoms, 14 were mentioned. Reactions that could not be classified as criterion symptoms formed three primary sets: acute psychological distress (*ataques de nervios*, depression), lasting trauma, and somatic complaints (pain & illness, weakness).

Quirk, G. J., & Casco, L. (1994) **Stress disorders of families of the disappeared: A controlled study in Honduras**. *Social Science and Medicine*, 39, 1675-1679. The authors compared the stress symptoms of 25 families of the "disappeared" to 24 families bereaved by a natural death and 24 with no death. Families of the disappeared reported significantly greater prevalence of startle (30%), headache (24%), insomnia (17%), and other physiological reactions. Children showed more prevalent outbursts/mood issues (21%), declines in school performance (20%), and bed wetting (16%). Most (90%) bereaved families received social support, but families of the disappeared did not.

Sattler, D. N., Glower de Alvarado, A. M., Blandon de Castro, N., Van Male, R., Zetino, A. M., & Vega, R. (2006) **El Salvador earthquakes: Relationships among acute stress disorder symptoms, depression, traumatic event exposure, and resource loss**. *Journal of Traumatic Stress*, 19, 879-893. The authors conducted two studies, 3-4 weeks after earthquakes (2001) in El Salvador. In Study 1 (253 college students), levels of exposure and acute stress were relatively low. ASD was predicted by female gender, number of children in household, prior trauma, low social support, and loss of resources (conditions, energies, and personal characteristics). In Study 2 (83 adults), acute stress was predicted by prior trauma, home damage, and resource loss (objects and personal characteristics).

Sistiva-Castro, D. L., & Sabatier, C. (2005) **Violence sociopolitique, ESPT et coping religieux: Une étude comparative en Colombie [Socio-political violence, posttraumatic stress, and religion as a coping strategy: A comparative study in Colombia]**. *Revue Francophone du Stress et du Trauma*, 5, 97-107. In a comparison between 49 displaced adults and 50 non-displaced adults in Barrancabermeja, Colombia, 29% and 8%, respectively, met criteria for PTSD. Among displaced persons, PTSD symptoms correlated positively with both active and avoidance coping and negatively with life satisfaction.

Summerfield, D., & Toser, L. (1991) **'Low intensity' war and mental trauma in Nicaragua: A study in a rural community**. *Medicine and War*, 7, 84-99. Of 43 La Urbina ex-refugees living in a war zone in Nicaragua, 62% of men and 91% of women were cases on GHQ. The majority of women and nearly half of the men reported episodes of panic and nervousness, and depressed mood was also common. The authors estimated that 25% of men and 50% of women had PTSD.

As this issue has shown, there is an extensive literature on PTSD and other mental disorders in people who have experienced natural or technological disasters or political violence.

The PILOTS Database allows several levels of specificity in searching this literature. As with most searches, best results will be obtained by consulting the PILOTS Thesaurus to identify the most appropriate terms to use. The advice of a reference librarian or other expert searcher will greatly facilitate the search process.

Like most databases, the PILOTS Database employs a hierarchically-structured indexing vocabulary. Thus a general term like “Disaster” is divided into more specific terms such as “Accidents,” “Natural Disasters,” and “Technological Disasters”; and under “Natural Disasters” narrower terms such as “Avalanches,” “Floods,” “Hurricanes,” and “Volcanos.” The usual indexing practice is to assign the most specific applicable descriptor. Thus a study of the consequences of a volcanic eruption would be indexed under “Volcanos” rather than “Natural Disasters” or “Disasters.” So in order to find all literature pertaining to natural disasters one would have to enter multiple descriptors — in the case of the PILOTS Database, 13 narrower terms in addition to “Natural Disasters” itself.

Fortunately, there is a short cut. Clicking on the *Search Tools* tab reveals four choices, one of which is *Thesaurus*. Selecting this allows you to type in a word or phrase, and select *Alphabetical Index*, *Hierarchy*, or *Rotated Index*. Then click the *Go* button and you will see a display of the relevant descriptors. In many cases a descriptor will be followed by a [+ ] symbol, indicating that there are narrower terms that fall within that descriptor’s scope.

A check box next to each descriptor allows you to select one or more to include in your search. And buttons stacked to the left of the list allow you to specify how to combine those terms. You can use AND to narrow your search (by requiring that *all* the terms you

chose be present), OR to broaden it (by searching for *any* of the terms), or you can “explode” your search to include all the narrower terms in one go.

A PILOTS Database searcher who explodes “Natural Disasters” will be simultaneously searching for “Natural Disasters” and its 13 narrower terms, from “Avalanches” to “Volcanos.” An exploded search for “Disasters” will also look for “Accidents,” “Natural Disasters,” and “Technological Disasters,” *and* all of their subordinate terms: 31 in all. That saves a lot of typing!

If your goal is to narrow your search rather than to broaden it, the PILOTS Database can accommodate you. In addition to the 1600-odd descriptors that are listed in the PILOTS Thesaurus, we have established several hundred standard names for specific incidents, persons, and organizations. This means that you can search for papers on the Armero Mudslide (1985), Hurricane Mitch (1998), or the Mexican Floods (1999), or for any other disaster with a significant presence in the traumatic stress literature.

Unlike the descriptors that we apply to subject content, these identifiers are not formally part of the PILOTS Thesaurus; so we can add them as the need arises, rather than waiting until the next revision of the entire Thesaurus. But because they are treated as descriptors by the CSA Illumina search software, they can be combined with terms from the Thesaurus. So you can enter a search for articles on the occurrence of alcohol abuse among elderly survivors of Hurricane Mitch (*de=Hurricane Mitch and de=alcohol abuse and de=aged*) and it will lead you to the article by Kohn et al. (2005) described earlier in this issue.

The techniques described in this article will help you to find precisely what you need among the 38,000-odd publications indexed in the PILOTS Database.



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